National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:1999

GE Infrastructure Sensing
10311 Westpark Drive
Houston, TX 77042-5312
Mr. Kenneth A. Kolb
Phone: 713-975-0547 Fax: 713-975-6338
E-mail: kenneth.kolb@ge.com
URL: http://www.gesening.com

CALIBRATION LABORATORIES **NVLAP LAB CODE 200491-0**

NVLAP Code: 20/A01 ANSI/NCSL Z540-1-1994; Part 1 Compliant

MECHANICAL

NVLAP Code: 20/M08
Mass

Calibration of Primary Piston Gauge Masses

Range	*Best Uncertainty (±) Relative to Indicated Value* [note 1]	*Remarks*
1 mg to 17 kg	5.0×10^{-6} but not less than 0.5 mg	Substitution – Mechanical
1 mg to 1.2 kg	5.0×10^{-6} but not less than 0.5 mg	Substitution – Electronic

Calibration of Secondary Piston Gauge Masses

1 mg to 8.0 kg	2.0×10^{-5} but not less than 0.5 mg	Substitution – Electronic
1 mg to 1.2 kg	2.0×10^{-5} but not less than 0.5 mg	Direct Reading - Electronic
1.2 kg to 8 kg	2.0×10^{-5} but not less than 43 mg	Direct Reading – Electronic

2007-01-01 through 2007-12-31

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology

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THERMODYNAMICS

NVLAP Code: 20/T05
Pressure

Pneumatic Pressure using Primary Piston Gauge *note 2*

Range	*Best Uncertainty (±) of Reading* *note 1*	*Remarks*
-100 kPa to -1.38 kPa	1.0×10^{-5} but not less than 0.07 Pa	Negative Gauge Mode
-16 kPa to 16 kPa	1.1×10^{-5} but not less than 0.034 Pa	Differential Mode
1.38 kPa to 1.4 MPa	1.0×10^{-5} but not less than 0.07 Pa	Gauge Mode *note 4*
1.4 MPa to 7 MPa	1.1×10^{-5} but not less than 2.8 Pa	Gauge Mode *note 4*
7 MPa to 21 MPa	$1.1 \times 10^{-5} + 1.9 \times 10^{-7}$ per MPa	Gauge Mode
21 MPa to 104 MPa	3.5×10^{-5}	Gauge Mode

Pneumatic Effective Area Determination using Primary Piston Gauge *note 2*

Range	*Best Uncertainty (±) of Reading* *notes 1, 7*	*Remarks*
1.38 kPa to 345 kPa	8.8×10^{-6}	
11.72 kPa to 1.4 MPa	8.3×10^{-6}	
14 kPa to 7 MPa	$1.0 \times 10^{-5} + 2.4 \times 10^{-7}$ per MPa *note 3*	
700 kPa to 21 MPa	$1.0 \times 10^{-5} + 4.8 \times 10^{-7}$ per MPa *note 3*	
1.17 MPa to 104 MPa	3.37×10^{-5}	

Pneumatic Pressure using Precision Transducer *note 2*

Range	*Best Uncertainty (±) of Reading* *note 1*	*Remarks*
0 Pa to 133 Pa	0.133 Pa	Absolute Mode
-16 kPa to 16 kPa	5.0×10^{-5} but not less than 0.035 Pa	Differential Mode
-100 kPa to 17 MPa	6.5×10^{-5} but not less than 0.22 Pa	Gauge Mode *note 5*

Pneumatic Effective Area Determination using Precision Transducer *note 2*

20 Pa to 17 MPa	7.2×10^{-5} but not less than 0.05 Pa

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Pneumatic Deadweight Tester Output Pressure Conformance using Precision Transducer [note 2]

Range	*Best Uncertainty (±) of Reading* [notes 1, 8]	*Remarks*
20 Pa to 17 MPa	7.5×10^{-5} but not less than 0.053 Pa	

Hydraulic Pressure using Primary Piston Gauge [note 2]

Range	*Best Uncertainty (±) of Reading* [notes 1, 6]	*Remarks*
50 kPa to 7 MPa	2.5×10^{-5} but not less than 10 Pa	Gauge Mode
7 MPa to 140 MPa	3.5×10^{-5}	Gauge Mode
14 MPa to 280 MPa	7.5×10^{-5}	Gauge Mode
280 MPa to 500 MPa	1.0×10^{-4}	Gauge Mode

Hydraulic Effective Area Determination using Primary Piston Gauge [note 2]

Range	*Best Uncertainty (±) of Reading* [note 1]	*Remarks*
50 kPa to 7 MPa	2.31×10^{-5}	
7 MPa to 140 MPa	3.34×10^{-5}	
140 MPa to 280 MPa	7.29×10^{-5}	
280 MPa to 500 MPa	9.80×10^{-5}	

Hydraulic Effective Area Determination using Secondary Piston Gauge [note 2]

70 kPa to 140 MPa	7.2×10^{-5}

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Hydraulic Deadweight Tester Output Pressure Conformance using Secondary Piston Gauge *note 2*

70 kPa to 140 MPa	7.5×10^{-5} but not less than 50 Pa

1. Represents an expanded uncertainty using a coverage factor, k = 2, at an approximate level of confidence of 95 %.
2. This capability includes on-site calibration service, as limited by influences of operating environment.
3. Component uncertainties are combined in quadrature.
4. For absolute mode, uncertainties increase by 1.33E + 00 Pa, combined in quadrature with stated level.
5. For absolute mode, uncertainties increase by 1.88E + 00 Pa, combined in quadrature with stated level.
6. For absolute mode, uncertainties increase by 1.31E + 01 Pa, combined in quadrature with stated level.
7. Calibration process may include the use of transducers to measure small differential pressures.
8. Conformance evaluation of Deadweight Tester output pressure compared to indicated pressure.

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